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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,574	12/11/2003	Sung-Joo Ben Yoo	UC02-232-3	2536

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EXAMINER

NGUYEN, CHAU M

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 08/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/735,574	YOO, SUNG-JOO BEN	
	Examiner	Art Unit	
	Chau M Nguyen	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June, 2204.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/11/03 02/23/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office action is in response to the communication filed on June 04, 2004.

Election/Restrictions

2. Applicant's election without traverse of Species I, which includes claims 1-17, is acknowledged.

Claims 18-20 have been cancelled without prejudice.

Priority

3. Acknowledgment is made of Applicant's claim for priority based upon Provisional Application No. 60/349,090 filed on January 16, 2002.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 8, (depended on claim 7) is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "said first optical signal" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Further, as cited in this claim, claim 8, it is confusing for impressing a plurality of electrical subcarrier signals upon optical signal. If the "first optical signal" is a signal for

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conveying packet payload, then, what is the characteristic of such electrical subcarrier signals that impressed upon such first optical signal. In all, the cited limitation is not clearly disclosed in the Specification.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 7 and 11, are rejected under 35 U.S.C. 102(b) as being anticipated by Sotom et al. (Hereinafter "Sotom") (U.S. Pat. No. 5,896,212).

As claim 7, Sotom discloses a method of optically routing packets, comprising the steps of:

a first step of impressing upon an optical transmission path a multi-wavelength signal comprising a plurality of optical data channels of different first optical wavelengths (such $\lambda_1 \dots \lambda_n$), each of said channels carrying a sequence of packet payloads (col. 3, lines 29-31);

a second step of impressing upon said optical transmission path an optical control signal (such λ_c , col. 3, lines 31-33) containing directional information for switching of all of said packet payloads ($\lambda_1 \dots \lambda_n$), and carried at a second optical wavelength (such λ_c) different from said first optical wavelengths (col. 5, lines 9-12 and lines 43-55);

detecting from said optical transmission path said optical control signal (col. 6, lines 12-16); and

based upon said directional information, switching said packet payloads (by 16, see fig. 4) in different spatial directions without converting said multi-wavelength signal to electronic form (col. 6, lines 19-26).

As claim 11, Sotom further comprises delaying said multi-wavelength signal (by 14, see fig. 4) prior to said switching step without similarly delaying said optical control signal (col. 5, lines 13-15).

8. Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by De Bosio (U.S. Pat. No. 4,939,721).

As claim 12, De Bosio discloses an optical packet switching method, comprising:
detecting a signaling (W1, see fig. 2) (label portion) of a packet impressed as an optical control signal on an optical transmission path (1) at a first optical wavelength (W1) (col. 3, lines 64-64);

processing (through Node Controller CEL & Processor PEE) said detected optical control signal to determine a switching path for said pack (col. 4, line 64 - col. 5, line 6);
and

based upon said switching path switching (by optical switch MOT) a data portion of said packet impressed on a selected one of a plurality of optical data channels of different second optical wavelengths (such as W2) impressed on said optical transmission path

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without converting said packet data portion to electronic form (col. 4, lines 12-16), wherein said second optical wavelengths are different from said first optical wavelength (col. 3, lines 11-13).

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 4, 7, 8, 12 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Chang et al. (Hereinafter "Chang") (U.S. Pat. No. 6,754,450 B2).

As claim 4, Chang discloses a method of optically routing packets, comprising the steps of:

at a first time, impressing onto an optical transmission path header (210, fig. 2) (packet signal information) for a first packet (WP) on a first optical signal having a first wavelength (col. 12, lines 53-62);

at a second time (T, see fig. 2) later than said first time by a predetermined time difference, impressing onto said optical transmission path a data payload (211) (col. 13, lines 1-9) for said first packet on a second optical signal having a different second wavelength (col. 4, lines 59-62);

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detecting from said optical transmission path said first optical signal (col. 14, lines 59-61);

processing said detected first optical signal to determine a switching path, wherein said processing may be performed within a time period of no more than said time difference (col. 14, lines 61-65); and

switching said second optical signal according said determined switching path (through optical switch 430, detailed in fig. 4) without converting it to electrical form (col. 15, lines 3-6).

As claims 7 and 12, Chang discloses a method of optically routing packets, comprising the steps of:

a first step of impressing upon an optical transmission path a multi-wavelength signal (such as A , 801, see figs. 12, col. 19, lines 41-46) comprising a plurality of optical data channels (λ_{1A} , λ_{2A}) of different first optical wavelengths, each of said channels carrying a sequence of packet payloads (A1, A2) (col. 20, lines 46-52);

a second step of impressing upon said optical transmission path an optical control signal (sub-Header A1 for path A) containing directional information for switching of all of said packet payloads and carried at a second optical wavelength different from said first optical wavelengths (col. 4, lines 59-62);

detecting (by 820) from said optical transmission path said optical control signal (header/label) (col. 20, lines 54-63); and

based upon said directional information, switching (through optical switch 1251) said packet payloads in different spatial directions without converting said multi-wavelength signal to electronic form (see fig. 12).

As claim 8, Chang (fig. 22) show configuration of the step for impressing (by elements 2222, 2232, 2242) a plurality of electrical subcarrier signals (such $f_1, f_2, \dots f_N$) upon said first optical signal (such λ_1) (col. 27, lines 26-35).

As claim 15, Chang discloses an optical packet transmission method, comprising:
impressing upon an optical transmission path (such as line A, 801, see fig. 9) a plurality of data portions (A1, A2) (col. 20, lines 46-52) of a plurality of packets at selected ones of a plurality of first optical wavelengths (such as $\lambda_{1A}, \lambda_{2A}$); and
impressing upon said optical transmission path a plurality of label portions (Header A1, Header A2) of said plurality of packets at a second optical wavelength different from said first wavelengths (col. 4, lines 59-62).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1, 2, 3, 5, 6, 9, 10 13, 14, 16 and 17, are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (Hereinafter "Chang") (U.S. Pat. No. 6,754,450 B2) in view of Schmidt et al. (Hereinafter "Schmidt") (U.S. Pat. No. 6,426,831 B1).

As claim 1, Chang discloses a method of optically routing packets, comprising the steps of:

a first step of impressing onto a optical fiber (such 602, fig. 7) header (701) (packet signaling information) for a first packet on a signaling optical signal having a signaling wavelength within a first fiber band (col. 8, lines 59-67);

a second step of impressing onto said optical fiber a data payload (211) for said first packet on a first optical signal having a first wavelength within a different second fiber band (col. 9, lines 10-12) ;

detecting (by 730) from said optical fiber said signaling optical signal (col. 19, lines 5-8); and

based upon said detecting, spatially switching (through optical switch 720, col. 19, lines 24-26) said first optical signal (on 6022 path) without converting it to electrical form.

Chang does not clearly show a silica optical fiber as cited in the claimed invention. However, Schmidt discloses the use of silica optical fiber for routing packets (col. 1, lines 31-35). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to use silica optical fiber as taught by Schmidt in order to route optical signals. One would have motivated for using such silica fiber since silica fiber supports high-speed transfer rate with minimum lost (col. 1, lines 24-30).

As claim 2, the combination system as described above, Chang further comprises:
a third step of impressing onto said optical fiber (such 801, see fig. 9) packet signaling information (Header A2) for a second packet on a second optical signal having said signaling wavelength (such λ_{2A});

a fourth step of impressing onto said optical fiber a data payload for said second packet on a second optical signal having a second wavelength (such λ_{2A}) different from said first wavelength (such λ_{1A}) within said second silica fiber band (col. 20, lines 46-63) and

based upon said detecting step spatially switching (by optical switch 851) said second optical signal (λ_{2A}) without converting it to electrical form.

As claim 3, Chang also discloses each header including (impressing) RF signal (see fig. 17) upon data payload signal (col. 25, lines 30-40).

As claims 5, 6, 9 and 10 the method as described in the above rejection (rejection claim 4), Chang discloses the header (first) and data payload (second) wavelengths can be set to different and/or same transmission band (col. 4, lines 59-62) and (col. 4, lines 44-46).

Chang does not clearly show a silica transmission band as cited in the claimed invention. However, Schmidt discloses the use of silica optical fiber, which is using the transmission band of silica fiber, for routing packets (col. 1, lines 31-35). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to use transmission band of silica optical fiber as taught by Schmidt in order to route

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optical signals. One would have motivated for using such silica fiber since silica fiber supports high-speed transfer rate with minimum lost (col. 1, lines 24-30).

As claims 13, 14, 16 and 17, the system of Chang as described in the claim rejection above (rejection claims 12 and 15), in that Chang does not clearly show a silica optical fiber as cited in the claimed invention. However, Schmidt discloses the use of silica optical fiber for routing packets (col. 1, lines 31-35). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to use silica optical fiber as taught by Schmidt in order to route optical signals. One would have motivated for using such silica fiber since silica fiber supports high-speed transfer rate with minimum lost (col. 1, lines 24-30).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chang (U.S. Pat. No. 6,754,449 B2) is cited to show optical layer multicast switch.

Chang (U.S. Pat. No. 6,766,114 B2) is cited to show optical layer multicast switch using a single sub-carrier header and a multicast switch.

Nishihara (U.S. Pat. No. 6,512,616 B1) is cited to show optical packet switch.

Suzuki et al. (U.S. Pat. No. 5,018,130) is cited to show high-speed optical packet switching system using optical buffer.

Wang (U.S. Pat. No. 6,529,310 B1) is cited to show optical switch and protocols for use therewith.

Cotter et al. (U.S. Pat. No. 5,912,753) is cited to show optical telecommunications network.

Wada et al. (U.S. Pub. No. 2002/0027686 A1) is cited to show method for routing optical packets using multiple wavelength labels.

Handelman (U.S. Pub. No. 2003/0048506 A1) is cited to show optical packet switching apparatus and methods.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau M. Nguyen whose telephone number is 703-305-8965. The examiner can normally be reached on Mon-Fri from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4726. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

C.M.N.
Jul. 30, 2004


JASON CHAN
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